REMARKS

Claims 45 and 47 are objected to because of informalities.

Claims 1-29, 34-41, 45, and 47 are rejected under 35 U.S.C. 101 as allegedly being directed to non-statutory subject matter.

Claims 1-11, 30-40, 42, 46 and 48 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Staiger, Phillip, "Tutorial – Amapi 4.1.5 Material Editor" Revised 1/1/2001, http://www.thebest3d.com/amapi/tutorials/materialeditor/ (**Staiger I**), in view of Staiger et al., "Tutorial – Getting started with Amapi 4.1", Revised 7/9/2003, http:www.thebest3d.com/amapi/tutorials/bottlesmile/index.html (**Staiger II**).

Claims 12-16, 18, and 20-22 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over **Staiger I** in view of **Staiger II** and further in view of U.S. Patent No. 5,461,709 (**Brown**).

Claims 17 and 19 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over **Staiger I** in view of **Staiger II**, and further in view of **Brown** and U.S. Patent No. 6,822,635 (**Shahoian**).

Claims 23-28, 41, 45, and 47 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over **Staiger I** in view of **Staiger II**, and further in view of U.S. Patent No. 5,371,778 (**Yanof**).

Claim 29 is rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over **Staiger I** in view of **Staiger II**, and further in view of **Yanof** and **Brown**.

Applicant traverses the rejections. Applicant amends claims 1-23, 31, 33-40, and 45-48, and cancel claims 30 and 42. Dependent claims 45 and 47 are amended to correct the noted informalities. Independent claims 1 and 10 are amended to each be directed to an apparatus comprising a processor and memory. Independent claim 23, directed to a method, is amended to recite a displaying step, and a step utilizing "a graphical user interface device." Further, claims 1, 10, and 23 are each amended to recite a mapping a texture to a surface "without using geometric projection." These limitations are supported in the specification as originally filed, for example, in paragraphs [0005], [0013]-[0014], [0045], [0115], and [0186]-[0188], and in FIG. 27 – no new matter is added.

Upon entry of this paper, claims 1-29, 31-41, and 45-48 will still be pending.

Independent claims 1, 10, and 23, and all claims dependent therefrom, are directed to statutory subject matter under 35 U.S.C. 101.

Independent claims 1 and 10 stand rejected under 35 U.S.C. 101. Without acquiescing to the rejections, Applicant amends claims 1 and 10 to each be directed to an apparatus and to recite

a processor and memory, thereby placing the subject matter of these claims in the statutory category of machines.

Independent claim 23 also stands rejected under 35 U.S.C. 101. The Office Action argues that the claimed method neither transforms underlying subject matter to a different state or thing nor ties to another statutory category of invention. Applicant respectfully traverses. Claim 23 is directed to a method for adjusting a texture of a surface of a three-dimensional virtual object within a user-defined region. The method is based on the interaction of a user with software via hardware components. Without acquiescing to the rejection, Applicant amends claim 23 to recite a step of displaying a three-dimensional graphical user interface element, and a step of adjusting a texture according to a user manipulation via a graphical user interface device. The displaying step implies a *display device*, which provides visual information to the user. In turn, the user provides an input for adjusting the texture, using a graphical *user interface device*, as illustrated, e.g., in FIG. 27. Therefore, amended claim 23 is tied to particular machines.

For at least these reasons, Applicant submits that independent claims 1, 10, and 23, along with dependent claims 2-9, 11-22, 24-29, 31-41, and 45-48, are directed to patentable subject matter, and requests that the rejections under 35 U.S.C. 101 be reconsidered and withdrawn.

None of the art teaches a three-dimensional graphical user interface element operable to adjust a texture mapped within an *arbitrarily shaped user-defined region* onto a surface of an *arbitrarily-shaped* virtual object *without using geometric projection*, as recited in each of independent claims 1, 10, and 23.

The Office Action maintains the previous rejections based upon **Staiger I** and **Staiger II**. The Examiner concedes that **Staiger I** does not disclose a texture mapped onto an arbitrarily-shaped user-defined region of a three-dimensional virtual object (*see* page 5 of the 10/23/08 Office Action). However, the Examiner contends that **Staiger II** discloses such an arbitrarily-shaped region—the extracted bottle piece. Applicant respectfully traverses. The extracted bottle piece is not an arbitrarily-shaped region because all the points that make up the region, including the boundary points, are confined to the same cylindrically shaped surface. The term "arbitrarily-shaped" as used by Applicant implies that the surface of the three-dimensional object itself may be of any shape (e.g., have arbitrary curvature). A region that necessarily falls onto a surface of specific geometry, such as the cylindrical surface of the bottle in **Staiger II**, is not arbitrary even if its boundary is not further confined, i.e., is arbitrary *within* the cylindrical surface. Applicant further clarifies the capability of the claimed apparatus and method to adjust a texture mapped onto a surface of *any* shape by amending claims to recite an "arbitrarily-shaped user-defined region of a surface of an arbitrarily-shaped three-dimensional virtual object".

To further distinguish the claims from **Staiger I** and **II**, Applicant amends independent claims 1, 10, and 23 to recite the limitation of mapping a texture onto a surface "without using geometric projection." By contrast, the methods disclosed in **Staiger I and II** appear to *require* the use of geometric projection methods for mapping a texture onto a surface. For example, in **Staiger I**, the user must select a mapping that is closest to the geometry of the 3D object. (*See* **Staiger I**, p. 12 (requesting the user to "[c]lick the 'Mapping' menu and [to] select 'Cylindrical'" because "the geometry of the can is closest to a cylinder").) **Staiger II** does not appear to

describe methods of mapping a 2D texture onto a *surface* of a virtual object. Instead, the extracted piece in **Staiger II** is "made transparent, with a 3D texture of noise mapped to bump to give it scattered refraction and get the tempered glass effect." (*See* **Staiger II**, p. 51.) There is no description of a 2D mapping technique in **Staiger II** that does not involve geometric projection. Furthermore, the extracted piece in **Staiger II** is not contiguous with the bottle. If the method of **Staiger I** for mapping a two-dimensional image or texture onto a surface was applied to the extracted piece of **Staiger II**, the mapping would still involve a geometric projection. Since geometric projection methods only work for specific geometries (e.g., planar, spherical, or cylindrical), **Staiger I** and **II** are limited to mapping texture onto surfaces of simple geometries, but do not enable mapping a texture onto an arbitrarily-shaped surface region. The capability of Applicant's invention to map between the surface of a three-dimensional object and a texture *without the need for geometric projection* is one of the advantages of the invention. (*See*, e.g., paragraphs [0013]-[0014], and [0015].)

None of the secondary references cited by the Examiner (**Brown**, **Shahoian**, and **Yanof**), cures the failure of **Staiger I** and **II** to disclose systems or methods for mapping a texture onto an arbitrarily-shaped surface region of a an arbitrarily-shaped three-dimensional virtual object without using geometric projection. In fact, the secondary references do not appear to teach or suggest methods for texture mapping at all.

Further, with regard to claim 23, the Examiner concedes that **Staiger I** and **II** do not disclose "modifying a transformation matrix used in mapping points on the surface of the virtual object to points on the texture" (*see* page 19 of the 10/23/08 Office Action), but contends that **Yanof** does. Applicant respectfully disagrees with the Examiner's reading of **Yanof**. The transformation matrix in **Yanof** appears to translate, scale, or rotate data representing a three-dimensional object (*see, e.g.*, **Yanof**, col. 6, lines 30-65), but does not map points on the surface of a three-dimensional object to a texture.

Claims 1, 10, and 23 are patentable in light of the prior art, at least for the reasons presented here, and Applicant respectfully requests reconsideration and withdrawal of any remaining rejections of these claims. Dependent claims 2-9, 11-22, 24-29, 31-41, and 45-48 depend directly or indirectly from one of these independent claims and are therefore also patentable in light of all the cited art, at least on this basis. Applicant respectfully requests reconsideration and withdrawal of all remaining rejections.

CONCLUSION

In view of the foregoing, Applicant respectfully requests reconsideration and withdrawal of all rejections, and allowance of claims 1-29, 31-41, and 45-48 in due course. The Examiner is hereby cordially invited to contact Applicant's undersigned representative by telephone at the number listed below to discuss any outstanding issues.

Respectfully submitted,

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/William R. Haulbrook/
William R. Haulbrook, Ph.D.
Attorney for Applicant
Goodwin Procter LLP
Exchange Place
Boston, Massachusetts 02109
Customer No. 051414

Tel. No.: (617) 570-1013
Fax No.: (617) 523-1231